

same spectrum can be *fully resolved* by modifying how this 400 MHz of downlink spectrum is used by satellites. Significantly, this solution would have no impact on LMDS because LMDS does not require access to any part of the downlink band.

First, the 19.3-19.45 GHz band can be used for MSS feeder downlinks by the same MSS system(s) that use the shared 29.1-29.25 LMDS/MSS feeder link band for uplinks. This accommodates the feeder link needs of at least one MSS system.

Second, one or more additional MSS systems can use all or part of the 19.3-19.7 GHz band in the *opposite* direction for feeder uplinks (i.e., using reverse band working). For their downlink needs, these systems can use other frequency bands that have been proposed for feeder downlinks, such as the 15.45-15.65 GHz band.<sup>13/</sup>

Third, the 29.25-29.5 GHz band can be retained for use by GSO FSS systems.<sup>14/</sup>

This solution provides the following significant benefits:

- (1) It accommodates feeder links for at least two MSS systems.
- (2) It resolves the current mutual exclusivity between the pending GSO FSS and MSS feeder link proposals.

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13. *See In re Preparation for International Telecommunication Union World Radiocommunication Conferences, FCC 95-256* (released June 15, 1994) at 19-20.

14. Hughes understands that Motorola desires to access 50 MHz of this band (29.25-29.30 GHz) on an occasional basis for initiating operations of the Iridium satellites from two feeder link complexes, one in Chandler, Arizona, and one in Hawaii. Preliminary discussions Hughes has had with Motorola suggest that coordinating this use may be possible, but Motorola has not yet been able to provide sufficient details about these proposed operations to confirm the feasibility of coordination.

- (3) It is fully consistent with the U.S. proposal for WRC-95,<sup>15/</sup> which calls for
- the 19.4-19.7 GHz band to be made available in both directions (uplink and downlink) for MSS feeder links; and
  - the 15.45-15.65 GHz band to be made available in both directions (uplink and downlink) for MSS feeder links.
- (4) It eliminates co-primary feeder link use from the 29.25-29.5 GHz band, allowing GSO FSS access to that band without unreasonable constraints.

The part of the 19.3-19.7 GHz band that Hughes proposes for MSS feeder link reverse band working (19.45-19.7 GHz) also would be the "natural" downlink band for GSO FSS operations at 29.25-29.5 GHz. Even with MSS feeder links operating in the reverse direction of the GSO FSS in this part of the band, some type of geographic exclusion zones still would likely exist around the MSS feeder link station that would preclude nearby GSO FSS operations.<sup>16/</sup> However, the existence of these exclusions zones would be significantly less problematic because of the availability of alternate spectrum in the downlink band that could be used by GSO FSS to avoid a potential conflict.

Under the current band plan, LMDS would have access to 850 MHz at 27.5--28.35 GHz. Because of the incompatibility of LMDS and FSS service in the uplink

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15. *See id.*

16. *See CPM Report on technical, operational and regulatory/procedural matters to be considered by the 1995 World Radio Communication Conference ("CPM Report") at 45-50.*

band,<sup>17/</sup> 850 MHz of the corresponding downlink band at 17.7--18.55 GHz would be uncommitted to any particular domestic use. Thus, GSO FSS applicants who desired to avoid downlinks in the 19.45-19.7 GHz band shared with NGSO MSS feeder links would be free to seek authority to use a different 250 MHz of downlink spectrum in the 17.7--18.55 GHz range.

Unless GSO FSS satellites are assured the ability to operate across 1000 MHz of 28 GHz spectrum by accommodating feeder link needs in the downlink portion of the Ka band on a reverse band working basis, GSO FSS systems could be excluded from 250 MHz of the 28 GHz band that is critical to their successful deployment. Hughes therefore urges adoption of the proposal outlined above.

3. Second Solution: Proposed Modifications To The Band Plan

If the Commission does not adopt the limitations just described on use of the 29.25-29.5 GHz band by MSS feeder links to ensure continued access by GSO FSS systems to a full 1000 MHz of the 28 GHz band, the Commission should consider the following modifications to its band plan proposal. Significantly, these modifications do not decrease the quantity of spectrum that would be available to any service: they merely modify how certain services share the band:

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17. See Section II.D.3, below.

27.5                      28.0                      28.5                      29.0                      29.5                      30.0

LMDS	GSO/FSS	NGSO/FSS	MSS FEEDER LINKS	GSO FSS
fss	ngso/fss	gso/fss	LMDS	ngso/fss
500 MHz	500 MHz	500 MHz	500 MHz	500 MHz

This alternative to the Commission's current proposal provides the following benefits:

- Avoids the unresolved GSO FSS and NGSO MSS feeder link sharing issues addressed above and allows Motorola and TRW to operate their feeder links at 28 GHz without any codirectional overlap between the feeder links or between the feeder links and the GSO FSS service.
- Implements the results of the 28 GHz Negotiated Rulemaking, which concluded that LMDS/feeder link sharing is possible due to the limited number of feeder link earth stations.<sup>18/</sup>
- Provides an additional 100 MHz for feeder link needs now or in the future.
- Provides two equal-sized, 500 MHz spectrum blocks for LMDS and possible licensing by two competitors in the same market

Significantly, there are no technical barriers to the implementation of these refinements, and they are fully consistent with proposed Section 21.1002 to the Commission's LMDS rules, which contemplates the possibility of accommodating multiple MSS feeder links in the band shared with LMDS. Of course, like the rest of the Commission's band plan, the feasibility of implementing it is dependent on the outcome of WRC-95, as discussed below.

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18. As evidenced by the agreement reached by Motorola and Cellularvision, NGSO MSS feeder links and LMDS are able to share the band on a co-equal basis without unduly constraining the operation of either system.

This proposal previously was jointly introduced to the Commission by Texas Instruments, Teledesic, Boeing and Hughes, and later was supported by Hewlett Packard, Lockheed Martin and NASA.<sup>19/</sup> In addition, Motorola proposed a similar scheme to avoid the NGSO MSS feeder link/GSO FSS conflict.<sup>20/</sup> The Commission, however, has rejected this solution on the grounds that using two non-contiguous 500 MHz blocks for LMDS may increase the cost of some analog LMDS system designs.<sup>21/</sup> However, there is no basis for concluding that providing two 500 spectrum blocks to LMDS imposes any greater costs than providing LMDS with one 850 MHz block and one 150 MHz block. Moreover, there is nothing in the record that supports such a claim of cost increase from the use of non-contiguous LMDS spectrum blocks. To the contrary, a study commissioned by Hughes, filed in this proceeding on July 3, 1995 and attached as Exhibit 1, confirms that the use of non-contiguous spectrum blocks for LMDS does not increase system costs. Furthermore, there is no reason to think that the use of non-contiguous spectrum blocks is any more expensive for LMDS systems than it is for satellite systems. Hughes therefore urges the Commission to reconsider this solution to the current conflict because of the benefits that it provides and the broad support this solution has received from both satellite and terrestrial interests.

4. Other Solutions.

For almost a year, Hughes has been engaged in extensive analyses to develop other methods by which GSO FSS systems and NGSO MSS feeder links could share the

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19. See Notice at ¶ 46.

20. See Ex Parte Presentation of Motorola, Inc. in CC Docket No. 92-297 (June 28, 1995) (28 GHz Band Plan - Option 3).

21. Notice at ¶ 46.

same spectrum, in the same geographic areas, and in the same direction of transmission.

The techniques that Hughes has studied, and long has advocated that the Commission adopt, would require NGSO MSS systems to use their inherent technical capabilities to avoid the so-called "in-line" interference events that occur when transmissions to and from their "moving" satellites intersect with transmissions to or from a "stationary" GSO FSS satellite or earth station.<sup>22/</sup> Since this is not a problem that a stationary GSO FSS has the inherent ability to solve, Hughes has proposed two mitigation techniques that NGSO systems could implement in combination with each other and with additional mitigation techniques described in the CPM 95 Report in order to avoid interference during "in-line" events: (i) satellite diversity (an MSS feeder link can "look" to one of the other NGSO satellites in the sky when interference otherwise would occur), and (ii) earth station diversity (the MSS operator can use a different feeder link complex to communicate with a given satellite when interference otherwise would occur). These techniques are technically feasible to implement and would allow NGSO MSS feeder links and GSO FSS systems to operate on a full co-frequency, co-directional, co-geographic basis without either system experiencing or creating harmful interference. They work equally well on both the uplink and the downlink side. Use of these techniques could allow the development of workable GSO FSS/NGSO MSS feeder link spectrum sharing rules that would not result in exclusion zones and would not require coordination prior to implementing either GSO FSS or NGSO MSS feeder link earth stations.

Hughes has advocated the adoption of these types of sharing conditions

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22. See, e.g. Comments of Hughes, IC Docket No. 94-31 (March 6, 1994); Reply of Hughes, IC Docket No. 94-31 (April 14, 1995); Ex Parte Presentation of Hughes, CC Docket 92-297 (June 7, 1995).

because they provide many significant benefits. They would allow access to the spectrum by multiple satellite systems in the future and would allow new technologies to develop along with today's satellite systems. However, like the other spectrum sharing techniques the Commission has adopted, they do not come free: they require that NGSO MSS feeder links include certain operational and hardware capabilities in their systems.

In the past year, Hughes has held numerous discussions with NGSO system proponents to discuss these types of proposals and has submitted many supporting papers as part of preparations for WRC-95. While no NGSO proponent has deemed these techniques technically impractical, NGSO proponents generally have dismissed these methods as too costly or too difficult to implement at this late stage in their system design, which systems are under construction expressly at their own risk.

In summary, the failure to adopt a feasible method to facilitate GSO FSS and NGSO MSS feeder link sharing, such as reverse band working, would prevent GSO FSS networks from accessing 25% of the spectrum proposed to be allocated to them in the current band plan, and therefore would unduly constrain development of GSO FSS systems at 28 GHz. Absent the adoption of the reverse band working option outlined in Section II.B.2 above, Hughes urges the Commission to modify its band plan as described in Section II.B.3 above to obviate the need for GSO FSS and NGSO MSS feeder link sharing.

C. Resolution Of This Proceeding Should Await The Conclusion Of WRC-95

As a practical matter, the adoption at WRC-95 of Ka band proposals for accommodating GSO FSS, NGSO MSS feeder links and NGSO FSS systems that are different from the U.S. WRC-95 proposal would have a significant impact on the ability of

any NGSO system (FSS or MSS) to take advantage of the priorities provided to it in the band plan proposed in the Notice. As many parties to this proceeding have argued, the availability of a consistent, worldwide spectrum allocation is critical to the implementation of tomorrow's global satellite systems. Hughes therefore recommends that the Commission not modify its existing domestic table of allocations for the 28 GHz band in this proceeding until WRC-95 concludes and its results can be incorporated into the current proposal. At a minimum, any band plan that the Commission may adopt should be contingent upon, and subject to revision after, WRC-95.

Due to the inherent global nature of NGSO satellite systems, any domestic priorities adopted for NGSO MSS or NGSO FSS use of the 28 GHz band would be meaningless unless they are consistent with global allocations of the same spectrum. In other words, the Commission's band segmentation proposal will be impractical for NGSO systems to implement unless the rest of the world adopts a similar band plan. Similarly, unless the rest of the world precludes GSO FSS access to the 500 MHz (28.5-29.0 GHz) that the Commission proposes to set aside for NGSO FSS, there would be no reason to preclude GSO FSS systems from operating in the U.S. in spectrum that is available in the rest of the world. Despite the best efforts of the U.S. WRC-95 Delegation, it is possible that WRC-95 will either adopt the FCC's MSS feeder link and NGSO proposals in a modified form or decline to adopt them. Unless the Commission accounts for these possibilities in resolving this proceeding, the U.S. could be faced with a series of domestic spectrum use restrictions that would forestall the implementation of global systems that otherwise are consistent with the spectrum allocation and regulatory decisions of WRC-95.



To avoid the implementation of domestic regulations that may unnecessarily deviate from international satellite allocations adopted at WRC-95, Hughes strongly recommends that the Commission defer action in this proceeding until the conclusion of WRC-95 in November, or at a minimum, make any reallocation decisions explicitly contingent on the outcome of WRC-95.

D. Other Issues

1. Deletion Of The Co-Primary Allocation For MSS At 29.5-30.0 GHz.

The Commission's proposed domestic band plan reduces *by over 60%* the amount of spectrum that currently is available over the United States on a primary basis for 28 GHz band GSO FSS satellite systems. And, as noted above, in order for this band plan to meet the minimum system requirements of GSO FSS operators, the remaining 1000 MHz of spectrum that is proposed to be preserved for GSO FSS use must practically be available. However, the potential for co-primary MSS operations in the 29.5-30.0 GHz band threatens the ability of GSO FSS systems to use *a full one-half* of the 1000 MHz that the Commission proposes to set aside for them. Absent implementation of the types of interference mitigation techniques described at Section II.B.4, above, Hughes agrees that it is unlikely that MSS service links and FSS systems can share the same part of the 28 GHz band due to the ubiquitous nature of both MSS and FSS receive and transmit equipment. In order to ensure continued access to enough 28 GHz band spectrum for GSO FSS systems, Hughes therefore supports either the deletion in the U.S. allocation table of the allocation for MSS at 29.5-30.0 GHz, or, at a minimum, the reduction of this allocation to a secondary basis.

When it first proposed a co-primary allocation for MSS at 29.5-30.0, the Commission properly was concerned about the limited availability of spectrum in the 28 GHz band. The Commission reasoned, however, that this reallocation would have only a limited effect on future FSS use of this band because, even if MSS and FSS operations were incompatible, MSS would be authorized in only 20% of the 28 GHz spectrum then available for FSS service.<sup>23/</sup> The proposed band plan changes this balance dramatically.

Under the current band proposal, the introduction of a *single* incompatible MSS system at 29.5-30.0 GHz could reduce by 50% the amount of 28 GHz spectrum available for GSO FSS service. Combined with the potential for feeder links to exclude GSO FSS service from access to 250 MHz of spectrum, the introduction of a single MSS system in this band could leave GSO FSS systems with *only* 250 MHz of spectrum in the 28 GHz band. This simply would not be enough spectrum to support any GSO FSS satellite system. In order to allow GSO FSS systems access to the minimum bandwidth they need to be viable, the Commission should delete the co-primary allocation for MSS at 29.5-30.0 GHz. At a minimum, the Commission should reduce this allocation to a secondary basis to ensure strict, non-interference operations with the FSS.

## 2. LMDS Grandfathering

In order to implement the proposed band plan, Hughes has no objection in principle to providing the one current LMDS licensee in the 28 GHz band a reasonable time

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23. *In re Amendment of Section 2.106 of the Commission's Rules to Upgrade to Primary Status the Secondary Mobile-Satellite Service Allocation of 19.7-20.2 GHz and 29.5-30 GHz ("MSS/FSS 29.5-30.0 Reallocation Order")*, 9 F.C.C. Rcd 3403, 3404 (1994).

period to transition from its current operations at 28.35-28.5 GHz. However, Hughes is concerned the Commission's proposal that Cellularvision cease LMDS operations at 28.35--28.5 GHz by the later of (i) three years after the release of an order in this proceeding adopting a band reallocation, or (ii) the successful launch of the first 28 GHz GSO satellite. Instead, the Commission should establish a firm three year transition period.

As currently proposed, this rule could provide an incentive for an LMDS licensee to seek to stall the licensing of GSO FSS systems in order to provide a longer transition period for LMDS. And any delay in licensing a GSO FSS system will obviously delay the date when that system can begin operations.

It is critical that the Commission establish a definitive deadline for this transition that is not subject to change or exception. The current band plan proposal places a number of burdens on GSO FSS operators that have the potential to greatly restrict their ability to provide service. GSO FSS operators need the assurance that they will have access to a full 1000 MHz of spectrum when their systems are ready to be launched. In particular, their investors and lenders require comfort that the programs they plan to finance will not be hindered by further regulatory delays. The one LMDS operator will have a full three years to plan a transition to new frequencies, and there is no reason to add any uncertainty to this process. The Commission should adopt a three year transition period for the one existing LMDS licensee and make clear that it will not consider any exceptions or extensions to this "grandfathering" provision.

### 3. LMDS/FSS Sharing Is Not Feasible

The record of this proceeding clearly demonstrates that sensitive LMDS receivers are clearly incompatible with the nearby operation of FSS transmitters, whether they are used for NSGO FSS, GSO FSS or NGSO MSS feeder link services. Hughes supports the conclusion of the Commission that co-frequency sharing between NGSO FSS or GSO FSS systems and LMDS systems is not feasible at this time. This conclusion is consistent with the conclusions of the 28 GHz Negotiated Rulemaking Committee and nothing in the Geowave or Bellcore studies provides a basis for refuting that conclusion. As the Commission correctly notes, the Geowave study is limited to the Teledesic "grid" coverage proposal, which has not been proposed by any other 28 GHz applicant. Moreover, the MITRE report thoroughly refutes the proposals in the Bellcore study. Hughes agrees with MITRE's ultimate conclusion: "We can find no realistic method of band-sharing between LMDS and FSS services."<sup>24/</sup>

### III. **IT IS PREMATURE TO PROPOSE COMPETITIVE BIDDING FOR FSS APPLICATIONS**

The Commission properly has recognized that "it is premature to determine whether mutual exclusivity will occur" with respect to applications for FSS service in the 28 GHz band,<sup>25/</sup> but has nonetheless tentatively concluded that competitive bidding for GSO FSS licenses is appropriate pursuant to Section 309(j)(3) of the Communications Act,<sup>26/</sup> and

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24. *See Critique of the Bellcore Report* (June 1995), at xi, submitted as an Ex Parte Presentation of Satellite Broadcasting and Communications Ass'n, CC Docket No. 92-297, filed June 9, 1995.

25. *See Notice* at ¶ 136.

26. *Notice* at ¶ 132.

has further proposed bidding principles and procedures for a possible GSO FSS spectrum auction.<sup>27/</sup> It is, however, likewise premature to determine whether competitive bidding is appropriate here and which rules should be employed if actions are used. Before structuring the rules for FSS auctions, the Commission should have before it a well-defined set of 28 GHz applications that are in fact mutually exclusive. The Commission should therefore wait until the current 28 GHz satellite processing rounds have closed and the applications have been subject to comment before determining that competitive bidding is appropriate and before adopting rules to govern possible satellite spectrum auctions.

A. The Statutory Prerequisites For Competitive Bidding Have Not Been Met

Section 309(j) of the Communications Act authorizes the Commission to utilize competitive bidding only when two conditions are satisfied: (i) the Commission is faced with mutually exclusive applications and it cannot resolve the mutual exclusivity; and (ii) the spectrum for which the applications are filed is or will be primarily used for subscriber services.<sup>28/</sup> The Commission does not have before it the record to judge whether these conditions will be satisfied. Based on the Commission's experience in licensing FSS systems to date and the historical uses for FSS satellites, it is likely that these conditions will not be met with respect to GSO FSS applications.

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27. Notice at ¶¶ 137-196.

28. 47 U.S.C. §§ 309(j)(1); 309(j)(6)(E).

1. **The FCC Has Never Encountered A Mutually Exclusive Situation in the FSS Context**

Before making a determination that the 28 GHz satellite applications are "mutually exclusive,"<sup>29/</sup> the Commission is obligated to "use engineering solutions, negotiation, threshold qualifications, service regulations, and other means in order to avoid mutual exclusivity."<sup>30/</sup> The Commission's well-established satellite licensing procedures are consistent with this statutory mandate, and all experience to date indicates that mutual exclusivity will not arise among GSO FSS applicants in the current 28 GHz processing round.

The Commission has a long-standing policy that raises a clear presumption against finding mutual exclusivity among satellite applicants:

[T]he objective of our policies and procedures has been to accommodate as many applicants as is efficiently possible with a minimum of administrative costs or delays. In particular, artificial or inflexible definitions of mutual exclusivity have been avoided and an increasing number of satellites have been authorized to satisfy growing demand. . . . The result has been an industry that has served the public interest through the timely implementation of facilities and services.<sup>31/</sup>

These flexible licensing procedures recognize the high risk, large capital investment requirements and long lead times that are inherent in the satellite industry. As a result, there have been few institutional restraints and inhibitions to the development of

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29. 47 U.S.C. § 309(j)(1).

30. 47 U.S.C. § 309(j)(6)(E).

31. See *GTE Satellite Corp.*, 93 F.C.C.2d 832, 840 (1983) ("*GTE Reconsideration Order*"); see also *Big LEO Order*, 9 F.C.C. Rcd at 5966 (recognizing obligation to "attempt to eliminate mutual exclusivity" in the Big LEO licensing proceeding).

satellite technology, enabling the U.S. satellite market to thrive and the U.S. satellite industry to maintain its position as the world leader.

The traditional group processing procedures for satellite applications<sup>32/</sup> are an important element in the successful allocation of scarce orbit-spectrum resource and the rapid deployment of satellite systems.<sup>33/</sup> The group processing procedures respond effectively to a "complex process involving many factors, parties, and even at times, foreign countries."<sup>34/</sup> By taking into consideration a well-defined set of satellites, with particular launch schedules and technical characteristics, individual satellites can be assigned in a way to maximize use of the orbit-spectrum resource.<sup>35/</sup> In over 20 years and through numerous FSS processing rounds, the Commission has not once finally been faced with a case of mutually exclusive FSS satellite applications.<sup>36/</sup> For example, DBS licensing has followed a

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32. *See American Telephone & Telegraph and Ford Aerospace Satellite Services*, 2 F.C.C. Rcd 4431, 4432 (1987).

33. *See In re Assignment of Orbital Locations to Space Stations in the Domestic Field Satellite Service*, 5 F.C.C. Rcd 179, 182 (1990).

34. *GTE Reconsideration Order*, 93 F.C.C.2d at 839.

35. *AT&T/Ford*, 2 F.C.C. Rcd at 4432.

36. *See, e.g., Western Union Telegraph*, FCC 95-391 (released August 29, 1985) (no mutual exclusivity where "additional orbital locations were available for assignment"); *GTE Reconsideration Order*, 93 F.C.C. 2d at 839 (no mutual exclusivity where "at least one orbital location [was] available for assignment" in applicant's requested portion of the orbital arc, and where applicant's claim "ignored" Commission's satellite processing procedures which have avoided "artificial or inflexible definitions of mutual exclusivity.")

model of strenuously and successfully avoiding to date any characterization of applications as mutually exclusive.<sup>37/</sup>

In the end, whether mutual exclusivity exists with respect to 28 GHz GSO FSS satellite applications will turn on three factors: (i) how many applicants file in the processing round, (ii) whether the applicants are qualified under the Commission's rules, and (iii) whether all qualified applicants can be accommodated in the many available 28 GHz orbital positions. The first factor will be resolved when the filing window in the current processing round closes on September 29, 1995. The other two are discussed below.

a. Threshold Qualification Standards Must Be Applied To All Applicants

The FCC has in place longstanding regulations and threshold qualification standards that, according Section 309(j) of the Communications Act, must be applied before the Commission can determine whether it is faced with mutual exclusivity in the current processing round. Thus, the applications of applicants who are not financially qualified should not be accepted for filing.<sup>38/</sup>

Nor should the Commission accept for filing systems that are not compliant with its 2 degree spacing requirement. The Commission's 2 degree spacing rule has been a

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37. See, e.g., *Hughes Communications Galaxy*, 1985 LEXIS 2731 (1985) (DBS) ("We do not view the request by NEX and Hughes as mutually exclusive since sufficient orbital positions and channels remain available to make orbital assignments to all current permittees.")

38. The Commission properly has recognized that, in undeveloped bands such as the Ka band, greater flexibility in applying this rule may be needed to allow the implementation of new systems. See *Norris Satellite Communications*, 7 FCC Rcd 4289, 4290 (1992), *recon.* 9 FCC Rcd 7370 (1993).



critical factor in maximizing the amount of spectrum resources that are available at C and Ku band. Spectrum congestion is developing into a significant problem internationally and the Commission should continue to encourage application of policies, such as 2 degree spacing, that promote spectrum efficiency both over the U.S. and over other parts of the world.

The Commission's current threshold qualification rules are important to the implementation of a number of policies that have promoted the development of a competitive satellite industry. The Commission should continue to apply these policies to determine which applicants are qualified prior to determining whether any 28 GHz applications are mutually exclusive.

b. **Mutual Exclusivity Cannot Exist As Long as Enough Orbital Locations Are Available for all Qualified Applicants**

Once the Commission determines which 28 GHz applicants meet the threshold qualifications, the Commission must then determine whether there are sufficient orbital locations available for these qualified applicants before it can decide whether mutual exclusivity exists. In so doing, the Commission must apply its longstanding policy that duplicative requests for the same orbital location do not create mutual exclusivity.

1. ***The Number of "Available" Orbital Locations Depends Upon the Service Needs Stated In the Applications***

Until the filing window closes in the current processing round, it is impossible to determine whether all qualified applicants can be accommodated in the orbital locations available at 28 GHz. But since the 28 GHz orbital arc is wide open, it appears highly unlikely that mutual exclusivity will arise among GSO FSS applicants. Only one commercial

system has been licensed to date,<sup>39/</sup> and all other locations at least as far east as 60° W.L. and at least as far west as 140° W.L. remain available. Moreover, about 27 orbital locations remain available in the part of the arc that provides an elevation angle of at least 15 degrees over CONUS. However, the relevant test for determining whether mutual exclusivity exists is not whether the number of requests for orbital locations exceeds the number of CONUS slots. Rather, the Commission has always looked to whether there are sufficient slots to meet the needs of the qualified applicants. Whether a sufficient number of orbital locations are "available" is a function of the proposed systems submitted by the applicants. For example, CONUS coverage is irrelevant to one of the currently pending 28 GHz applications which seeks an assignment to 58° W.L. in order to provide certain international coverage.<sup>40/</sup>

The Commission never has limited its analysis to whether there are sufficient "full CONUS" locations,<sup>41/</sup> and it should not do so in this case.<sup>42/</sup> Even if the Commission were to adopt such a standard, however, it cannot determine the arc of "full CONUS coverage" without examining the full panoply of GSO FSS proposals and their

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39. NorSat holds a license to construct, launch and operate a Ka band system at 90° W.L.

40. *See Application of PanAmSat Licensee Corporation*, FCC File No. 117-SAT-AMEND-95.

41. *See GTE Reconsideration Order*, 93 F.C.C.2d at 873-38 & n.11 ("rather than inflexibly prescribing the technical parameters of orbital and frequency assignments, the Commission relies initially on applicants to design their own proposals for the Commission's consideration").

42. *See Notice at ¶ 144.*

technical characteristics. The Commission therefore must base its determination of whether enough orbital locations are "available" on a review of all qualified GSO FSS applications.

2. *Requests for the Same Orbital Location Do Not Create Mutual Exclusivity*

Even when FSS satellite applicants have requested identical orbital locations, Commission policy is clear that those conflicting requests do not give rise to mutual exclusivity. Rather, the Commission seeks to avoid such conflicts through its normal processing procedures and orbit assignment orders.<sup>43/</sup> In order to accommodate new entrants, respond to the changing needs of operators, and accommodate the satellites proposed by foreign countries, the Commission has always followed a flexible approach to assigning orbital locations. Simply stated, an applicants' request for a particular orbital location has never been dispositive of the location actually assigned by the Commission.<sup>44/</sup>

This approach is followed in the DBS service, where the Commission's rules expressly seek to preempt the potential for mutual exclusivity by confirming the Commission's policy that orbital locations and channels are deemed interchangeable and equivalent:

The Commission shall generally consider all frequencies and orbital positions to be of equal value, and conflicting requests for frequencies and orbital

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43. *GTE Reconsideration Order*, 93 F.C.C.2d at 839 & n.15 ("The desire of an individual applicant for a particular location is, and must be, balanced against the requirements of other users (domestic and foreign) if the most efficient and practical use is to be made of the spectrum"); *see also Hughes Communications Galaxy*, 1985 FCC LEXIS 2731 (applicants for same orbital location are not mutually exclusive when other slots in the orbital arc exist).

44. *See* 47 CFR § 25.114(c)(6) (requiring information about orbital location proposed, range of alternative locations, and supporting factors).

positions will not necessarily give rise to comparative hearing rights as long as unassigned frequencies and orbital slots remain.

47 CFR § 100.13 (1994).

Given these policies and the dictates of Section 309(j), the Commission should continue to seek to eliminate mutual exclusivity by resolving any requests for identical 28 GHz orbital locations that may arise.

2. There Is No Basis Yet For Concluding That The "Principal Use" of The 28 GHz Band For FSS Will Be For Subscriber Services

Before instituting competitive bidding for GSO FSS licenses, the Commission must determine that the spectrum to be auctioned is or likely will be used primarily for subscriber services.<sup>45/</sup> In order to determine whether the "principal use" of the spectrum is for subscriber services, the Commission must examine "the class of licenses and permits" that will be issued for the spectrum, not each individual license.<sup>46/</sup> Thus, before the Commission can designate 28 GHz satellite spectrum for competitive bidding, the Commission must first find that at least a majority of the use will be for service to subscribers for compensation.<sup>47/</sup> The tentative conclusion that the spectrum available for FSS licensing will be used primarily for subscriber services is premature because the Commission has not yet had the opportunity to consider either the applications to be filed in

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45. See 47 U.S.C. § 309(j)(2)(A) (Commission may use competitive bidding only if "the principal use of the spectrum will involve, or is likely to involve, the licensee receiving compensation from subscribers").

46. See *In re Implementation of Section 309(j) of the Communications Act -- Competitive Bidding*, 9 F.C.C. Rcd 2348, 2354, (1994) ("*Competitive Bidding Second Report and Order*") ("the best course is to evaluate classes of licenses and permits, rather than individual licenses, to determine the 'principal use' of the spectrum").

47. *Competitive Bidding Second Report and Order*, 9 F.C.C. Rcd at 2354.

the current processing round or the stated plans of the satellite industry about the likely use of this spectrum.<sup>48/</sup> Nor has the Commission accounted for its determination that the feeder links which may share 250 MHz of the designated FSS spectrum constitute non-subscriber FSS service.<sup>49/</sup>

While some of the pending GSO FSS 28 GHz proposals are likely to involve the provision of service to subscribers, Hughes also believes that a significant amount of 28 GHz spectrum will be used for the types of video distribution and intra-corporate services for which the C and Ku band are primarily used today. Use of the 28 GHz band to support intra-corporate communications among retail facilities, to provide video backhauls for the television networks, or to distribute video to cable systems across the country, would not fall within the definition of a "subscriber service" for purposes of Section 309(j). Rather, these constitute the types of "intermediate links" that are specifically exempt from competitive bidding.<sup>50/</sup> And, as described above, Hughes believes that 28 GHz soon will be relied upon as the primary source of expansion capacity for these types of "intermediate link" services. At bottom, the Commission does not yet have the record before it to conclude that the spectrum to be made available for use by GSO FSS will be "principally for subscriber

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48. See Notice at ¶¶ 130-131.

49. See *infra* pp. 45-46 & n. 62.

50. Spectrum allocated to feeder links for MSS systems, according to the *Notice* and other Commission precedent, is not "for subscriber services" and therefore not likely subject to competitive bidding. *Notice* at ¶¶ 146-147; *Competitive Bidding Second Report & Order*, 9 F.C.C. Rcd at 2355-56 n.30. Feeder links for MSS systems are considered "intermediate links," which do not directly receive or transmit communications signals directly to subscribers.

services." This issue should be addressed after applications in the current processing round have been filed and the comments in this proceeding have been submitted.

B. Domestic Satellite Auctions Would Adversely Affect The Development of International Satellite Systems

If the Commission, after reviewing all pending FSS applications for the 28 GHz band, finds mutual exclusivity that cannot be resolved and that the relevant class of licenses will be used primarily for subscriber services, it nonetheless may not resort to competitive bidding unless to do so would serve public interest or the objectives of the Communications Act.<sup>51/</sup> In particular, the Commission may auction spectrum only if it would lead to "the development and rapid deployment of new technologies, products and services . . . [and] efficient and intensive use of the electromagnetic spectrum."<sup>52/</sup> Competitive bidding for satellite spectrum would not promote the development of new satellite technologies; to the contrary, it would threaten the deployment of U.S.-sponsored international satellite systems.

Satellite services are becoming increasingly global in nature. The worldwide systems proposed by Hughes, Motorola, Loral/Qualcomm and others are part of the developing GII. While each of these systems has a critical nexus to the United States, each system's business plan is based in large part on the ability to access the global market. Likewise, the Commission's current "Domestic/International" satellite rulemaking<sup>53/</sup> recognizes the inherently international scope of satellite services through its

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51. See 47 U.S.C. § 309(j)(3).

52. 47 U.S.C. § 309(j)(3)(A), (D).

53. *In re Amendment to the Commission's Regulatory Policies Governing Domestic Fixed Satellites and Separate International Satellite Systems* (Notice of Proposed Rulemaking), FCC 95-146, IB Docket No. 95-41 (Released April 25, 1995).

proposal to streamline the way in which U.S. domestic satellites will be authorized to offer international service. In short, now that the domestic satellite industry has matured, satellite operators are increasingly looking toward the U.S. market as an important "springboard" for access to foreign countries.

As the Commission has recognized in the NRPM, the Commission is not able to license all of the rights that an operator of a international satellite system needs.<sup>54/</sup> After obtaining a license to serve the United States, the operator will need to acquire "landing rights" to provide service to a foreign country. U.S.-sponsored systems already face substantial hurdles in their quest to obtain these landing rights; the use of competitive bidding for U.S. satellite spectrum will only complicate efforts to acquire those rights abroad.

If the U.S. were to auction satellite spectrum, other countries would be encouraged to auction spectrum rights in their jurisdictions as well. Even if they opt not to auction spectrum, other countries will be encouraged to impose fees based on the value of the spectrum licensed in the U.S. before they award U.S.-sponsored systems the right to access those countries. This development could significantly increase the costs of deploying a global satellite system. And U.S.-sponsored systems would be placed at a significant competitive disadvantage compared to foreign satellite systems if they were forced to bid at an auction for spectrum rights for which foreign systems do not have to bid.

Moreover, the threat of foreign spectrum auctions creates valuation problems with respect to bidding for U.S. spectrum rights. It is extremely difficult for the "market" to take into account the uncertainty and increased costs that may arise with respect to acquiring

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54. Notice at ¶ 128.

foreign landing rights for a number of reasons. First, reliable information about these costs will not be available until after U.S. auctions are held. Second, it is difficult for the industry to estimate the prices that they will be willing to pay to acquire spectrum rights in foreign regions that are critical to make a global system a success, because there are no prior relevant market results on which to draw.<sup>55/</sup> Third, there is relatively little other data from which to draw: there currently is no ongoing "trading" in foreign spectrum rights that takes into account these costs and uncertainties and, in any event, there are very, very few participants in this global market. With no previous market results and relatively little other information to provide guidance, it is difficult, if not impossible, to forecast the corresponding costs and uncertainty that will arise in acquiring critical spectrum rights for foreign markets. Therefore, the valuation process for U.S. spectrum will not likely be able to account fully for the new costs and uncertainty that may arise in a worldwide satellite auction scheme.

Finally, the use of auctions for satellite spectrum would not comply with the statutory requirement that auctions be implemented only when they would lead to the development and rapid deployment of "new technologies, products and services"<sup>56/</sup>: the auction process simply cannot offer any "finality" in the licensing process for an international satellite system. As described above, the acquisition of foreign "landing rights" is critical to the success of an international satellite system. And, as the Commission correctly

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55. The recent auctions for PCS spectrum are not helpful because PCS is an inherently different market from satellite services.

56. See 47 U.S.C. § 309(j)(3)(A), (D).



recognizes, while the Commission can license the right to serve the United States, its auction process cannot address the right to serve the foreign locations that are inherently within a satellite's coverage area. In short, satellite spectrum auctions would likely create the types of problems outlined above without providing any corresponding benefit in the licensing process.

To summarize: The Commission has carefully developed policies and group processing procedures in both the fixed satellite and direct broadcast areas over the past twenty years that have fostered the growth of a vibrant satellite industry by ensuring the "timely implementation of facilities and services."<sup>57/</sup> To date, the Commission has been able to adjust its policies to account for the inherent flexibility of satellite technology, to respond to changing circumstances and growing user needs, and to provide adequate service over a significant range of orbital locations.<sup>58/</sup>

The Commission's existing satellite licensing processes have evolved to meet the unique requirements of global satellite service, and should not be lightly displaced. Although competitive bidding may be a useful license selection mechanism for many services, it is untested in the satellite arena and could unduly hinder the development of a globally competitive U.S. satellite industry.

C. Status Of MSS Feeder Links

The real potential for mutual exclusivity for FSS GSO applicants in the 28 GHz band comes not from other FSS GSO applicants, but, as discussed above, from

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57. *GTE Reconsideration Order*, 93 F.C.C.2d at 840.

58. *GTE Reconsideration Order*, 93 F.C.C.2d at 838.